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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,238	10/26/2001	Carlos A. Gonzalez	884.535US1	5267

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EXAMINER
MITCHELL, JAMES M

ART UNIT	PAPER NUMBER
2827	

DATE MAILED: 10/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/003,238	GONZALEZ ET AL.	
	Examiner	Art Unit	
	James Mitchell	2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 October 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) *30-32* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-29, drawn to device, classified in class 438, subclass 126.

II. Claims 30-32, drawn to device, classified in class 345, subclass 145.

2. The inventions are distinct, each from the other because of the following reasons:

3. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, because the transitional claim language "comprising" is inclusive of additional process steps other than the particular recited steps, the scope of the process claims encompasses a step of removing the component in order to make a final product having no component.

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Michael Smith a provisional election was made with traverse to prosecute the invention of invention I, claims 1-29. Affirmation of this election must be made by applicant in replying to this Office action. Claims 30-32 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

6. Claims 1, 2, 10, 16-18, 22, 23, 27 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Goossen (U.S 5,975,408).

7. Goossen (Fig 1, 2; Claim 1) discloses an electronic assembly package fabricated by a method comprising depositing a no-flow underfill material (13) comprising epoxy (claim 9) in a component mounting area comprising a plurality of pads (12), placing a component (14) on the component mounting area such that terminals (15) of the component are aligned with corresponding pads (12) and substantially enveloped in the underfill material (13) wherein the underfill is deposited on the pads and applying suitable pressure and suitable heat are performed substantially concurrently (inherent in thermocompression; Column 3, Lines 9-10) using an inherent thermocompression bonder and die placement tool (Column 5, 63-65).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goossen as applied to claim 1 and further in combination with Wong et al. (U.S 6,180,696).

11. Goossen does not appear to explicitly disclose that the underfill material comprises a filler material "to" reduce CTE, increase the modulus of elasticity and increase viscosity.

12. Although the prior art does not appear to explicitly teach "to" reduce CTE, increase the modulus of elasticity and increase viscosity, this statement of intended use does not result in a structural difference between the claimed apparatus and the apparatus of the prior art. Further, because the apparatus of prior art is inherently capable of being used for the intended use the statement of intended use does not patentably distinguish the claimed apparatus from the apparatus of prior art. Similarly, the manner in which an apparatus operates is not germane to the issue of patentability of the apparatus; Ex parte Wikdahl 10 USPQ 2d 1546, 1548 (BPAI 1989); Ex parte

McCullough 7 USPQ 2d 1889, 1891 (BPAI 1988); In re Finsterwalder 168 USPQ 530 (CCPA 1971); In re Casey 152 USPQ 235, 238 (CCPA 1967). Also, "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim."; Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). And, "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims."; In re Young, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 136 USPQ 458, 459 (CCPA 1963)). And, claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

13. Claims 6-9, 26 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goossen as applied to claims 1, 22 and 29 and further in combination with Garrett (U.S 2002/0128354).

14. The prior art does not appear to disclose the underfill material comprising a silica filler material, however Garrett utilizes an underfill comprising 70% spherical silica filler in an underfill (Abstract; Par. 0009) with a particle ranging between .05 to 40 microns (Page 3, Base Formulation Table).

15. It would have been obvious to one of ordinary skill in the art to modify the underfill of Goosen by incorporating a filler containing silica, in order to reduce moisture adsorption (Par. 0019).

16. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goossen as applied to claim 1 and further in combination with Wong et al. (U.S 6,180,696).

17. The prior art does not appear to show the underfill comprising a fluxing agent, however Wong utilizes an underfill comprising a fluxing agent containing one or more hydroxyl group (Title; Column 5, Line 42).

18. It would have been obvious to one of ordinary skill in the art to modify the underfill of Goossen by incorporating a fluxing agent, in order to provide fluxing with little corrosive effect to the interconnect as taught by Wong (Column 5, Lines 42-44).

19. Claim 13-14, 19-21 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goossen as applied to claims 1 and 22 and further in combination with Saitoh et al. (U.S 6,229,220).

20. The prior art does not appear to disclose the terminals being pre-coated with solder wherein in applying heat via a die placement tool, the terminals become attached to pads through the solder.

21. Saitoh utilizes a pre-coated terminal (3a) with solder (3b) wherein in applying heat via an inherent die placement tool the terminals become attached to pads through the solder.

22. It would have been obvious to one of ordinary skill in the art to pre-coat the terminal of Goossen, in order to improve the life of the interconnection as taught by Saitoh (Column 1, Lines 10-12).

23. Claims 15 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goossen as applied to claims 1 and 22 and further in combination with Anonymous (DERW 1988-255069).

24. The prior art does not appear to disclose pads being pre-coated with solder wherein in applying heat, the terminals become attached to pads through the solder.

25. Anonymous utilizes a pre-coated pad (G) with solder (A) wherein in applying heat, the terminals become attached to pads through the solder.

26. It would have been obvious to one of ordinary skill in the art to pre-coat the pad of Goossen, in order to minimize stress as taught by Anonymous (Abstract).

Conclusion

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Mitchell whose telephone number is (703) 305-0244. The examiner can normally be reached on M-F 10:30-8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3230 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

jmm
October 1, 2002

DAVID L. TALBOTT
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800